CLASSIFICATION OF MATTER – Chapter 2

Read p 44 – 47 in your textbook and answer the following questions:

1. Write definitions for the following terms:

a) Pure substance

b) Mixture

c) Heterogeneous Mixture

d) Elements

e) Compounds

f) Atoms

g) Molecules

ANSWER THE FOLLOWING IN COMPLETE SENTENCES.

2. What did Democritus propose?

3. Name 3 gases mixed in air.

4. Is perfume a pure substance, a solution or a heterogeneous mixture? Explain your answer.

5. Draw labelled pictures of oxygen gas, water, vinegar and hydrogen peroxide in the space below. Colour the same as the text.

Which atom is red? \_\_\_\_\_\_\_\_\_\_\_\_\_

Which atom is white? \_\_\_\_\_\_\_\_\_\_

Which atom is black? \_\_\_\_\_\_\_\_\_\_\_

Classifying Substances by Composition

**Classify each of the following substances as an element, a compound, a homogeneous mixture or a heterogeneous mixture. In each case, give the reason for your choice.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Substance** | **Description** | **Classification** | **Reason** |
| Air | Clear, colourless gas with a single phase and has oxygen, nitrogen and carbon dioxide as well as other gases |  |  |
| Sugar | Small, white crystals composed of carbon, hydrogen and oxygen |  |  |
| Fertilizer | Small solid granules of varying colours |  |  |
| Sulphur | Yellow powder that melts at 113° C |  |  |
| Bluestone | Blue crystals of CuSO4 |  |  |
| Tea | Clear yellow-brown liquid |  |  |
| Granite rock | Black and white speckled solid |  |  |
| Baking soda | White powder of NaHCO3 that cannot be separated by physical means |  |  |
| Steel wool | Long strands of a shiny grey solid metal made of iron and carbon |  |  |
| Milk | White opaque liquid |  |  |
| Copper | Shiny red-brown solid that melts at 1083° C |  |  |
| Sodium hydroxide | White flakes that contain 57.5% sodium, 40.0 % oxygen, and 2.5% hydrogen |  |  |
| Oxygen | Clear colourless gas |  |  |
| Plastic wrap | Clear colourless solid that burns when heated |  |  |
| Ketchup | Thick red, opaque liquid |  |  |

**ACTIVITY - CLASSIFICATION OF MATTER – Sample Bottles**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Name of Substance** | **Chemical Formula**  **(if given)** | **Classification**  **(element, compound, homogeneous mixture, heterogeneous mixture)** | **Reason** |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |
| 11 |  |  |  |  |
| 12 |  |  |  |  |
|  | **Name of Substance** | **Chemical Formula**  **(if given)** | **Classification**  **(element, compound, homogeneous mixture, heterogeneous mixture)** | **Reason** |
| 13 |  |  |  |  |
| 14 |  |  |  |  |
| 15 |  |  |  |  |
| 16 |  |  |  |  |
| 17 |  |  |  |  |
| 18 |  |  |  |  |
| 19 |  |  |  |  |
| 20 |  |  |  |  |
| 21 |  |  |  |  |
| 22 |  |  |  |  |
| 23 |  |  |  |  |
| 24 |  |  |  |  |